BEARING STRUCTURE

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Abstract of **JP10110720**

PROBLEM TO BE SOLVED: To strengthen the surface hardness of a roller shaft by conducting a plasma nitriding treatment or a physical vapor deposition process for the outer peripheral surface of a shaft body at a lower temperature than the tempering temperature of the shaft body. SOLUTION: Tool steel (SKD) is used for a roller shaft, which is tempered at approx. 600 deg.C after hardened at approx. 1000 deg.C. Then a plasma nitriding treatment is conducted for the outer peripheral surface of the roller shaft at approx. 500 deg.C, which is lower than the tempering temperature. By applying such a plasma nitriding treatemnt, it is possible to form the outer peripheral surface of the shaft body so as to have Vickers hardness of HV 950 or higher. High carbon steel (SUJ2) may be used for a roller shaft, tempered at approx. 200 deg.C after hardened at approx. 800 deg.C, and an ion plating processing may be then applied as a physical vapor deposition (PVD method) at a lower temperature than tempering temperature. By applying this shaft body to a cam-follower with roller for diesel engine, it is possible to markedly-reduce wear amount of the outer peripheral surface of the shaft body.